

SEPTICEMIA or SEPSIS INPATIENT CARE IN TENNESSEE HOSPITALS 2010 – 2012

A SUMMARY REPORT OF SEPTICEMIA INPATIENT CARE

JUNE 2014

TENNESSEE DEPARTMENT OF HEALTH

“Septicemia and sepsis are serious bloodstream infections that can rapidly become life-threatening. They arise from various infections, including those of the skin, lungs, abdomen, and urinary tract. Patients with these conditions are often treated in a hospital’s intensive care unit. Early aggressive treatment increases the chance of survival...”

Despite high treatment expenditures, septicemia and sepsis are often fatal. Those who survive severe sepsis are more likely to have permanent organ damage, cognitive impairment, and physical disability. Septicemia is one of the leading causes of death. The purpose of this report is to describe the most recent trends in care for hospital inpatients with these diagnoses.”

The preceding two paragraphs are from

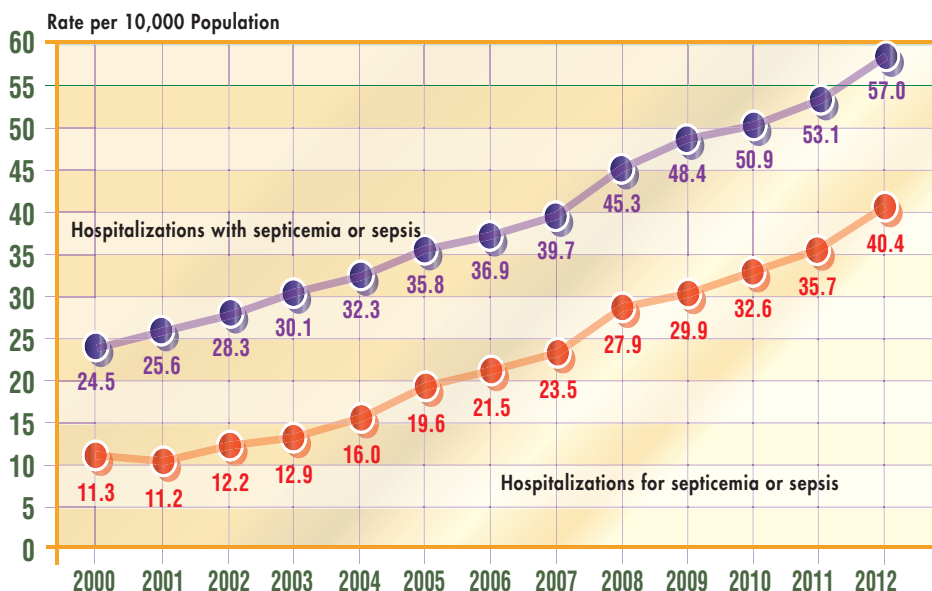
the introduction to an article by Margaret Jean Hall, Ph.D. et al entitled “Inpatient Care for Septicemia or Sepsis. A Challenge for Patients and Hospitals”. (NCHS Data Brief, No. 62, June 2011). The purpose of this article is to update the statistics for Tennessee published in the report *Septicemia or Sepsis Inpatient Care in Tennessee Hospitals 2008 and 2009* (January 2012).

In Tennessee, hospitalization rates for septicemia or sepsis increased 1.4 times from

2008 through 2012 (See Figure 1). As a principal or first-listed diagnosis, the rate per 10,000 population increased from 27.9 in 2008 to 40.4 in 2012.

The number of Tennessee cases (the numerator of the rate) increased from 17,115 to 26,085 over the five-year period.

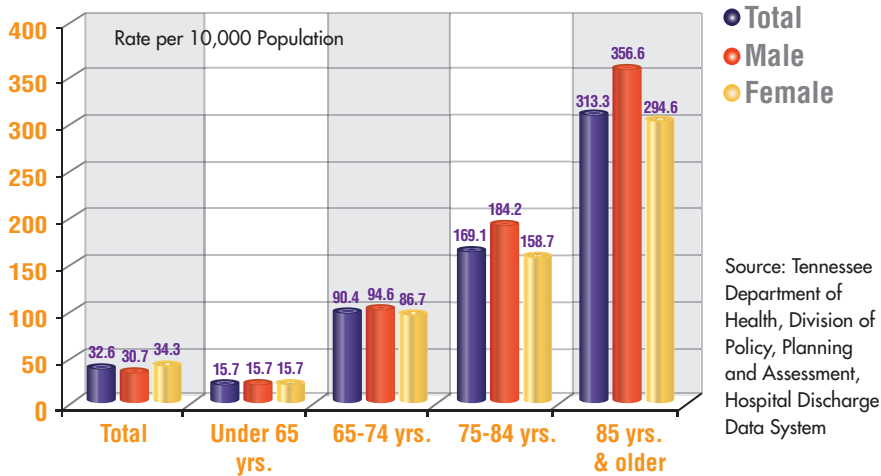
From 2008 to 2012, Tennessee hospitalizations with septicemia or sepsis (i.e. patients with a principal or secondary diagnosis) increased from 45.3 to 57.0 per 10,000 population. The number of Tennessee cases increased from 27,808 to 36,813. (Hospitalizations with septicemia or sepsis include patients who were hospitalized for septicemia/sepsis; patients having the infection but were hospitalized for some other condition; and patients who acquired the infection during their hospital stay.)



**FIGURE 1.
HOSPITALIZATIONS FOR AND WITH SEPTICEMIA OR SEPSIS, TENNESSEE, 2000-2012**

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Hospital Discharge Data System

FIGURE 2. RATES OF HOSPITALIZATION FOR SEPTICEMIA OR SEPSIS, BY AGE AND SEX, TENNESSEE, 2010

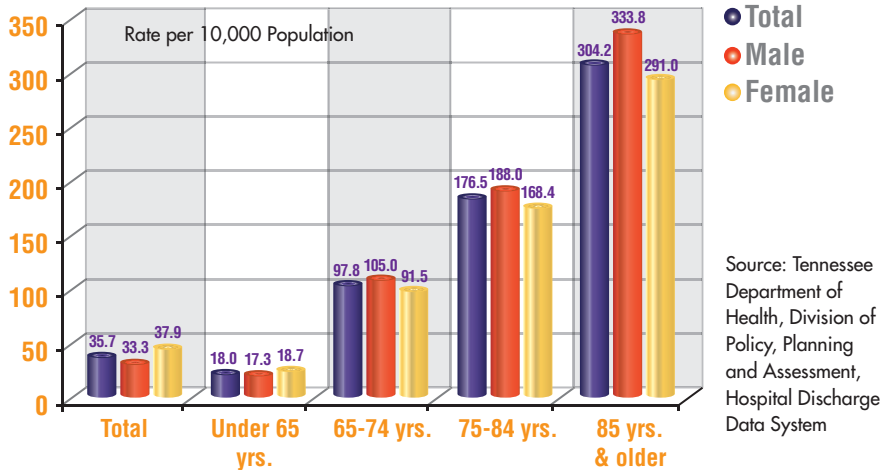


- Tennessee hospitalization rates for septicemia or sepsis greatly increased with age and varied by sex according to age.

- In 2010, the total number of males hospitalized for septicemia or sepsis was 9,505 with a rate of 30.7 per 10,000 population.

- The hospitalization rate for males increased to 356.6 per 10,000 population for the age group 85 years and older.

FIGURE 3. RATES OF HOSPITALIZATION FOR SEPTICEMIA OR SEPSIS, BY AGE AND SEX, TENNESSEE, 2011

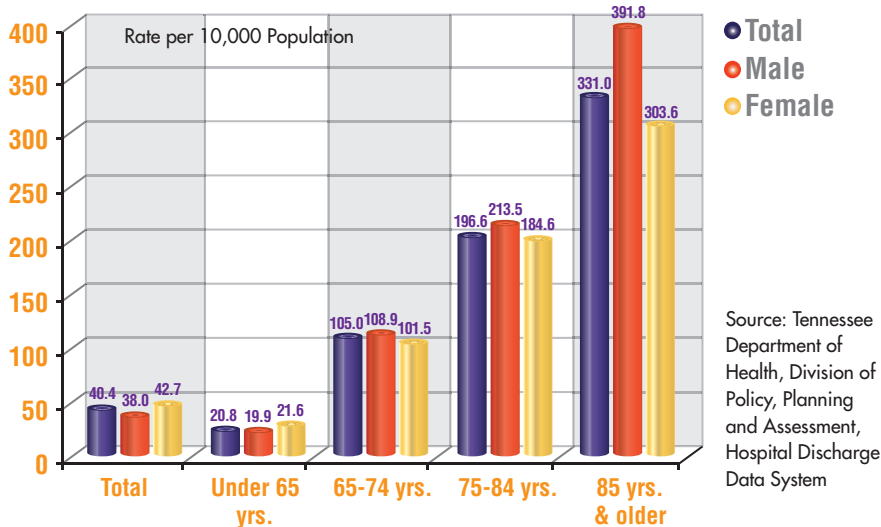


- The number for females was 11,159 with a hospitalization rate of 34.3 increasing to a rate of 294.6 for females 85 years and older.

- In 2011, the total number of males hospitalized for septicemia/sepsis increased to 10,393 with a rate of 33.3.

- The total number of hospitalizations for females was 12,453 with a rate of 37.9 per 10,000 population.

FIGURE 4. RATES OF HOSPITALIZATION FOR SEPTICEMIA OR SEPSIS, BY AGE AND SEX, TENNESSEE, 2012

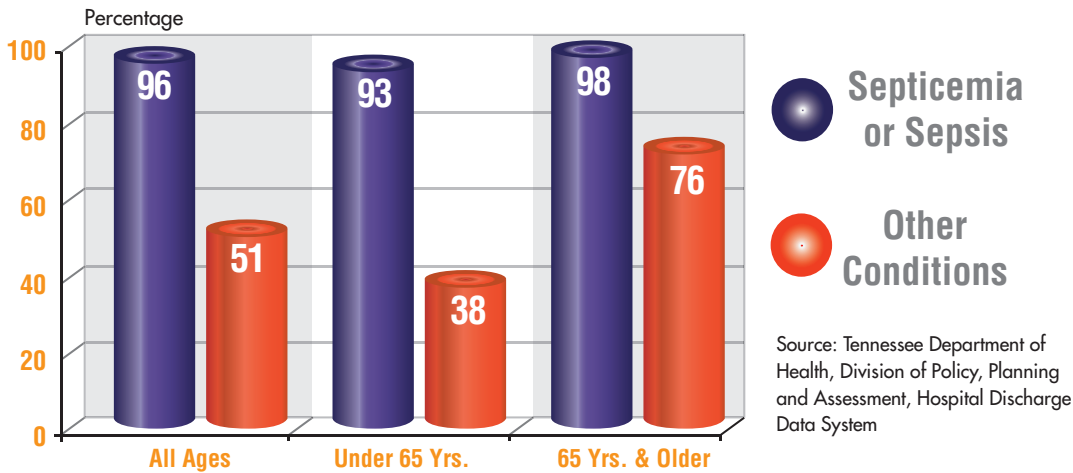


- The 2011 total hospitalization rates for age groups 65-74 years and 75-84 years were higher than the 2010 rates for those ages.

- The 2012 total hospitalization rates for septicemia/sepsis increased over 2010 and 2011 for males, females and all age groups.

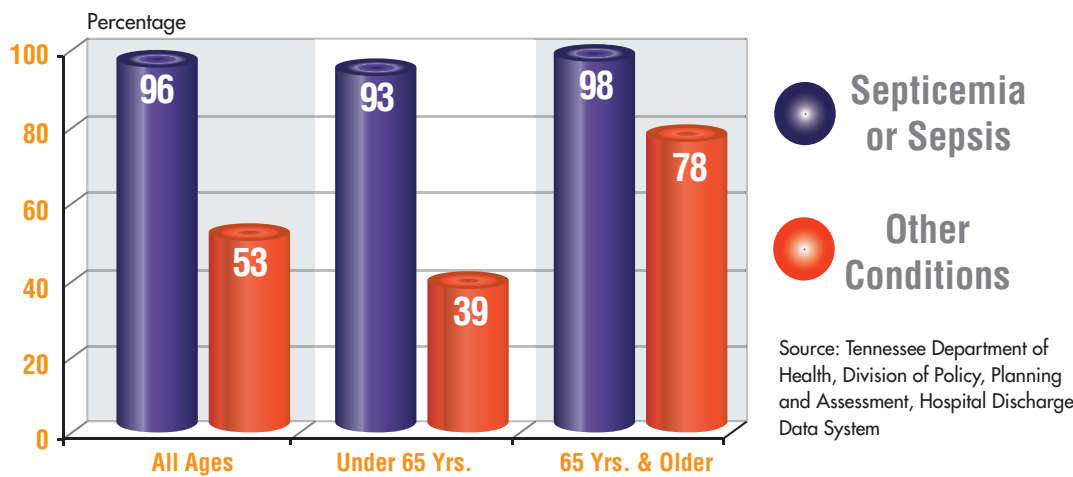
- Comparing the 2012 rates with the 2008 rates show that the rates increased (males 25.3 to 38.0, females 30.3 to 42.7, total 27.9 to 40.4).

FIGURE 5. PERCENTAGE OF HOSPITAL STAYS FOR PATIENTS WITH SEVEN OR MORE DIAGNOSES, TENNESSEE 2010



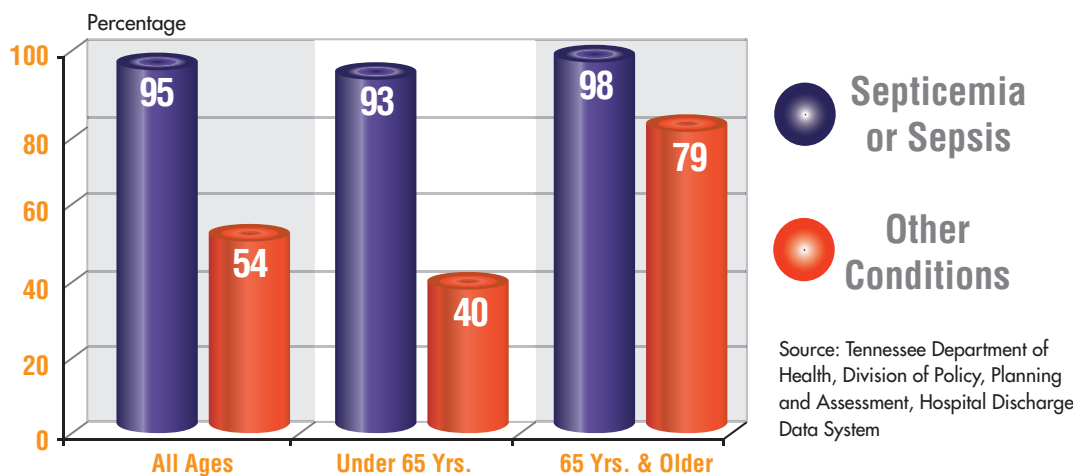
- Patients hospitalized for septicemia or sepsis were more severely ill than patients hospitalized for other diagnoses. This required comparing the percentage of hospital stays where the patient had a total of seven or more diagnoses for septicemia/sepsis versus patients with other conditions. (See Figures 5-7).

FIGURE 6. PERCENTAGE OF HOSPITAL STAYS FOR PATIENTS WITH SEVEN OR MORE DIAGNOSES, TENNESSEE 2011



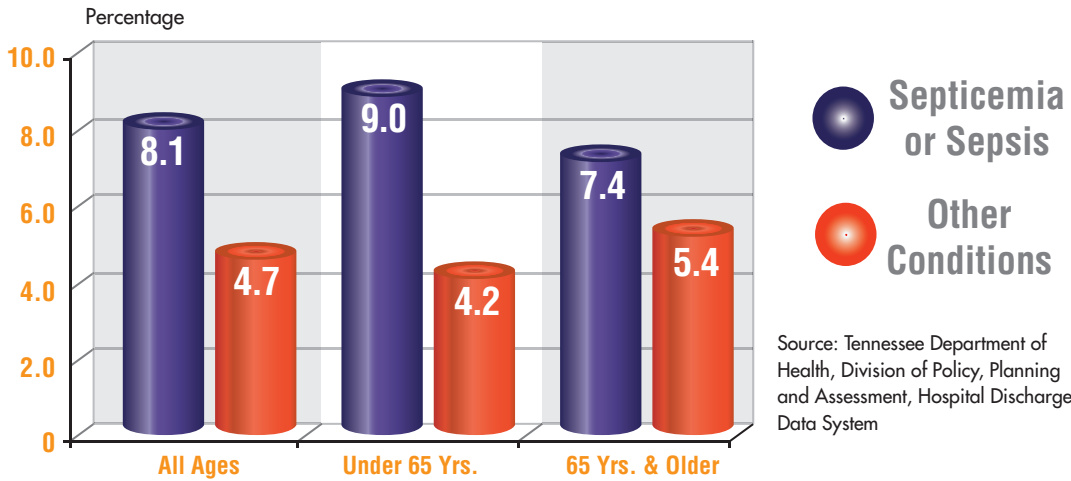
- In 2010-2012, Tennessee patients ages 65 and over hospitalized for septicemia or sepsis were 1.2 to 1.3 times more likely to have seven or more diagnoses than those hospitalized for other conditions. For patients under age 65 those hospitalized for septicemia or sepsis were twice as likely to have seven or more diagnoses that those hospitalized for other conditions.

FIGURE 7. PERCENTAGE OF HOSPITAL STAYS FOR PATIENTS WITH SEVEN OR MORE DIAGNOSES, TENNESSEE 2012



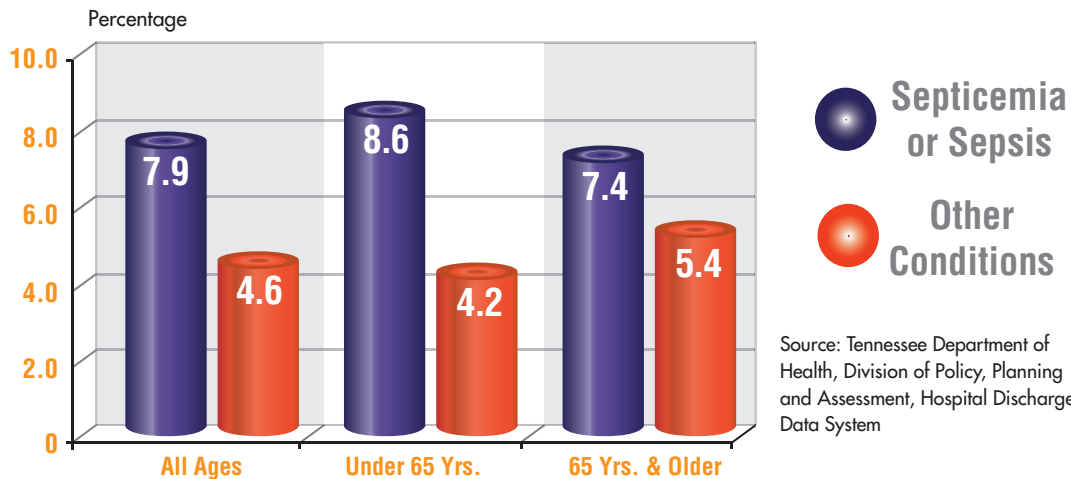
- Comparing the percentages for all ages of septicemia or sepsis versus other conditions for hospital stays with seven or more diagnoses showed 95 and 47 percent for 2008 and 95 and 54 percent for 2012.

FIGURE 8. AVERAGE LENGTH OF STAY FOR PATIENTS HOSPITALIZED FOR SEPTICEMIA OR SEPSIS COMPARED TO PATIENTS HOSPITALIZED FOR OTHER CONDITIONS, TENNESSEE 2010



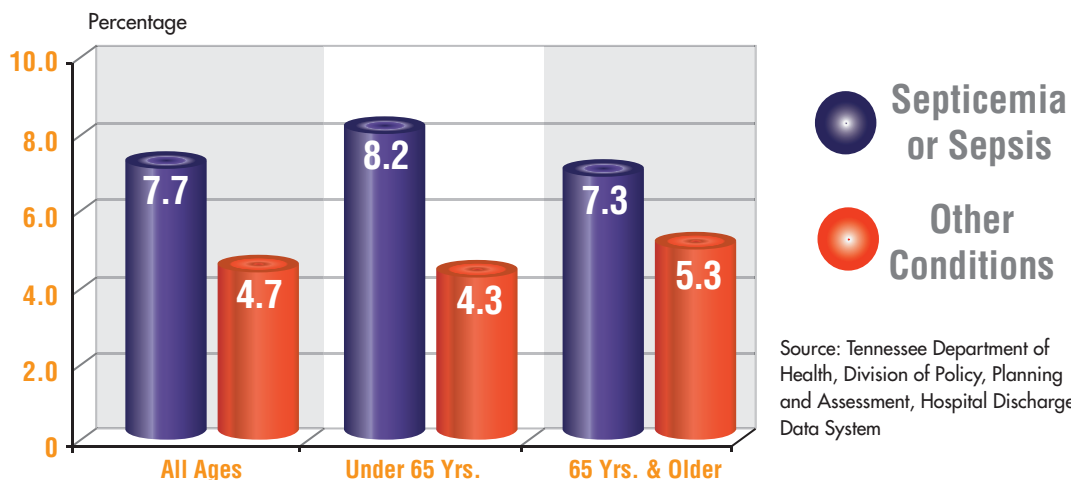
- Patients hospitalized for septicemia or sepsis stayed longer than other patients. The length of stay for all age groups was lower in 2012 than in 2010. In 2010 - 2012, Tennessee patients hospitalized for septicemia or sepsis had an average length of stay that was 64 to 72 percent longer than those hospitalized for other conditions.

FIGURE 9. AVERAGE LENGTH OF STAY FOR PATIENTS HOSPITALIZED FOR SEPTICEMIA OR SEPSIS COMPARED TO PATIENTS HOSPITALIZED FOR OTHER CONDITIONS, TENNESSEE 2011



- Comparing the length of stay for patients hospitalized for septicemia or sepsis versus patients with other conditions the 2008 and 2012 percentages were 74 and 64 percent longer respectively.

FIGURE 10. AVERAGE LENGTH OF STAY FOR PATIENTS HOSPITALIZED FOR SEPTICEMIA OR SEPSIS COMPARED TO PATIENTS HOSPITALIZED FOR OTHER CONDITIONS, TENNESSEE 2012



Patients hospitalized for septicemia or sepsis in 2010-2012 were about seven times more likely to die during their hospitalization. In 2012, for patients 0-64 years, 9 percent of those hospitalized for septicemia or sepsis died in the hospital, compared with 1 percent of those hospitalized for other conditions. For those aged 65 and over, 17 percent of those hospitalized for septicemia or sepsis died in the hospital, compared with 4 percent of those hospitalized for other conditions. (Age-specific data not shown).

Seventeen percent of Tennessee hospitalizations for septicemia or sepsis ended with death as opposed to 2 percent of those hospitalized for other diagnoses in 2008. In comparison 14 percent of Tennessee hospitalizations for septicemia or sepsis ended with death while 2 percent of those hospitalized for other diagnoses died in 2012.

HOSPITALIZATIONS FOR SEPTICEMIA OR SEPSIS COMPARED WITH HOSPITALIZATIONS FOR OTHER DIAGNOSES, BY DISCHARGE DISPOSITION, TENNESSEE 2010

CHARACTERISTICS	SEPTICEMIA OR SEPSIS	OTHER DIAGNOSES
DISPOSITION	Percent	Percent
Routine	32	72
Transfer to other short-term care facility	6	5
Transfer to long-term care institution	29	10
Died during the hospitalization	15	2
Other/unknown	18	12
Total	100	100

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Hospital Discharge Data System

HOSPITALIZATIONS FOR SEPTICEMIA OR SEPSIS COMPARED WITH HOSPITALIZATIONS FOR OTHER DIAGNOSES, BY DISCHARGE DISPOSITION, TENNESSEE 2011

CHARACTERISTICS	SEPTICEMIA OR SEPSIS	OTHER DIAGNOSES
DISPOSITION	Percent	Percent
Routine	34	72
Transfer to other short-term care facility	6	5
Transfer to long-term care institution	28	11
Died during the hospitalization	14	2
Other/unknown	18	11
Total	100	100

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Hospital Discharge Data System

HOSPITALIZATIONS FOR SEPTICEMIA OR SEPSIS COMPARED WITH HOSPITALIZATIONS FOR OTHER DIAGNOSES, BY DISCHARGE DISPOSITION, TENNESSEE 2012

CHARACTERISTICS	SEPTICEMIA OR SEPSIS	OTHER DIAGNOSES
DISPOSITION	Percent	Percent
Routine	36	72
Transfer to other short-term care facility	6	5
Transfer to long-term care institution	27	11
Died during the hospitalization	14	2
Other/unknown	17	11
Total	100	100

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Hospital Discharge Data System

In summary, the patient hospitalization rate for a first-listed diagnosis of septicemia or sepsis more than tripled from 2000 through 2012, increasing from 11.3 to 40.4 per 10,000 population. During the same period, the hospitalization rate for patients with septicemia or sepsis as a principle or secondary diagnosis more than doubled from 24.5 to 57.0 per 10,000 population. The 2008-2012 hospitalization rate for septicemia or sepsis increased from 27.9 to 40.4, while the 2008-2012 hospitalization rate for patients with a principle or secondary diagnosis increased from 45.3 to 57.0 per 10,000 population. Patients hospitalized for septicemia or sepsis had a longer stay than other patients, but the average length of stay for these patients declined from 2008 to 2012. Patients with septicemia/sepsis were about seven times as likely to die during their hospitalization.

Notes: Since the NCHS article only examined seven diagnoses in searching for a diagnosis with septicemia or sepsis the same procedure was used in analyzing Tennessee data. The population estimates for Tennessee used to calculate the rates in this report for 2000-2009 were based on figures prepared from the 2000 Census in February 2008 by the Division of Policy, Planning and Assessment. The population estimates for 2010 were based on the 2010 Census data. Population estimates for 2011 and 2012 were interpolated from the Census five-year age cohort estimates (CC-EST2011-ALLDATA-[ST-FIPS] May 2012) by the Division of Policy, Planning and Assessment in October 2012. These population figures may result in rates that differ from those published in previous time periods.

Please visit the **Policy, Planning and Assessment** pages on the Tennessee Department of Health website by selecting Statistics and Reports at:

tennessee.gov/health

The mission of the Department of Health is to protect, promote and improve the health and prosperity of people in Tennessee.

Septicemia or Sepsis Inpatient Care in Tennessee 2010 - 2012
was published by the Tennessee Department of Health,
Division of Policy, Planning and Assessment
Andrew Johnson Tower, 2nd Floor
Nashville, Tennessee, 37243
For additional information please contact:
(615)741-1954



Tennessee Department of Health, Authorization
No. 343116, (07-14) Website only